

What Is Claimed is:

1. A method of equipping and training licensed operators to perform sensor data acquisition at remote locations using a smart data system comprising at least one of the steps of:

a) charging a licensed operator a one-time setup fee to obtain a license to provide sensor data acquisition services and to obtain training;

b) charging the licensed operator an ongoing subscription fee for access to and use of a smart data analysis system for transmission of data and data warehousing services; and

c) charging the licensed operator an individual project fee, wherein said individual project fee varies according to the amount of analytics, display, and customer deliverables required.

2. The method according to claim 1, wherein said transmission of said data of said step (b) comprises:

transmitting said data via a software link to a Web site.

3. The method according to claim 1, wherein said smart data analysis of said step (b) comprises:

using computational software comprising at least one of: 2D visualization and 3D visualization of geo-referenced direct reading sensor data.

4. The method according to claim 1, wherein said smart data analysis of said step (b) comprises:

aggregating said data into a comparative database providing the user with relative analysis of various sites based on geological and contaminant conditions.

5. The method according to claim 1, wherein said data warehousing services of said step (b) comprises:

posting and delivering at least one of: an interactive two-dimensional visualization; an interactive three-dimensional visualization; and engineering design data; to a Web site.

6. The method according to claim 1, wherein said step (c) comprises:

delivery of software and paper deliverables for each of said projects to at least one of: the licensed operator; and other clients with licensed access.

7. The method according to claim 1, wherein said data comprises environmental data, and wherein said sensor data acquisition services comprise:

- a) acquiring environmental subsurface data via direct reading sensors;
- b) geo-referencing said data;
- c) transmitting said data to a data analysis application server; and
- d) analyzing said data to obtain information about said data.

8. The method of claim 7, wherein said data of step (a) comprises:
one or more data parameters.

9. The method of claim 7, wherein said environmental subsurface data relates to chemical and geological attributes of the subsurface.

10. The method of claim 7, wherein said direct reading sensors of step (a) comprise at least one of:

- direct sensing technologies;
- optical sensors;
- chemical sensors;
- electromechanical sensors;

membrane interface probe (MIP) sensors;
advanced MIP sensors;
laser induced fluorescence (LIF) sensors;
ultraviolet induced fluorescence (UVF) sensors;
polymer sensors; and
haloprobe sensors.

11. The method of claim 7, wherein said geo-referencing of said step (b) comprises at least one of:

geo-referencing in at least two dimensions; and
geo-referencing said data to a specific point on the earth's surface.

12. The method of claim 11, wherein said at least two dimensions comprise at least one of:

latitude, longitude, altitude, and time.

13. The method of claim 7, wherein said geo-referencing of said step (b) comprises:
geo-referencing in at least three dimensions.

14. The method of claim 13, wherein said at least three dimensions comprise at least one of: latitude, longitude, altitude, and time.

15. The method of claim 7, wherein said transmitting of step (c) comprises at least one of:

transmitting via the Internet; and
transmitting via a wireless communications link.

16. The method of claim 7, wherein said application server of step (c) comprises:
an application service provider (ASP).

17. The method of claim 7, wherein said step (d) comprises at least one of:
- storing said data in a database;
 - mining said data;
 - calculating said information from said data using an algorithm;
 - performing visualization processing in at least two dimensions;
 - displaying a graphical visualization of said data;
 - mapping said data; and
 - displaying in at least one of: two-dimensional and three-dimensional formats said data.
18. The method of claim 7, wherein said step (d) comprises at least one of:
- refining raw data into processed data;
 - normalizing said data for variations in acquisition of said data;
 - normalizing for condition of a membrane of a membrane interface probe (MIP);
 - normalizing for variation of actual subsurface conditions including at least one of chemical concentration and soil water matrix;
 - determining relative quality efficacy data including determining at least one of: pressure, flow rate, condition of detectors, drift, calibration, depth of probe, hydrostatic, and baseline noise of analytical/electrical system;
 - storing said data;
 - aggregating said data into aggregate data;
 - determining predictive modeling using said aggregate data;
 - assessing measure of risk using said aggregate data;
 - evaluating risk using said aggregate data;
 - calculating total mass of chemical compounds;
 - calculating volume of affected soil and groundwater;

calculating compound identification,
calculating removal costs,
performing sensitivity analysis, and
comparing data of multiple sites.

19. The method of claim 18, wherein said step of performing a sensitivity analysis comprises at least one of:

displaying using a “dashboard” type display; and
providing results to at least one of an office device, and a
field device.

20. The method of claim 7, further comprising:

e) posting said information on a web site for access by authorized users.

21. The method of claim 20, wherein said web site comprises:

a secure Internet Web site.

22. The method of claim 7, further comprising:

e) transmitting said information over a network to a mobile device.

23. The method of claim 22, wherein said network comprises:

a wireless network.

24. The method of claim 7, further comprising at least one of:

- e) aggregating said data into a database;
- f) mining said database;
- g) determining predictive modeling using said aggregate data;
- h) assessing measure of risk using said aggregate data;
- i) evaluating risk using said aggregate data;

- j) providing the user with relative analysis of various sites based on at least one of: geological information, and contaminant conditions; and
- k) storing said data in a database;
- l) grooming data;
- m) comparing data to at least one of: historical data, and data from other sites;
- n) performing datamining; and
- o) ranking sites.

25. The method of claim 7, further comprising:

- e) transmitting said information comprising:
 - i. transmitting said information including completed data analytics via the Internet back to source location for decision-making and process changes; and
 - ii. transmitting said information wirelessly to a mobile device to facilitate access via Internet protocols to said information analyzed from said sensor outputs.

26. The method of claim 7, further comprising at least one of:

- e) normalizing said data for variations in at least one of: acquisition of said data, condition of membrane of a membrane interface probe (MIP), subsurface conditions including at least one of chemical concentration and soil water matrix; and
- f) determining relative quality efficacy data including determining at least one of: pressure, flow rate, condition of detectors, drift, calibration, depth of probe, hydrostatic, and baseline noise of analytical/electrical system.